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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,054	08/20/2003	Michael Joseph Stirniman	SEAG-STL-2930P1	5143
91716 7590 04/16/2010 SEAGATE TECHNOLOGY LLC C/O Murabito Hao & Barnes LLP Two North Market Street Third Floor San Jose, CA 95113				
EXAMINER MACARTHUR, SYLVIA				
ART UNIT 1716		PAPER NUMBER		
NOTIFICATION DATE 04/16/2010		DELIVERY MODE ELECTRONIC		

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

officeaction@mhbpatents.com

### Office Action Summary

**Application No.**

10/644,054

**Applicant(s)**

STIRNIMAN ET AL.

**Examiner**

Sylvia R. MacArthur

**Art Unit**

1716

**-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --**  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 06 January 2010.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8, 13-23, 28 and 29 is/are pending in the application.
- 4a) Of the above claim(s) 16-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-8, 13-15, 28 and 29 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 20 August 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### **Response to Arguments**

1. Applicant's arguments regarding claims 1-8, 13-15, 28, and 29 have been considered but are unpersuasive. Applicant has broadened the claim but maintained the recitation in claim 1 that the lubricant vapor source comprises a plurality of threaded holes positioned in a direction parallel to the drilled hole into which the plurality of primary plugs are screwed therein and thus the double patenting rejection has been withdrawn, but the art rejection using the prior art of Liehr et al (US 6,487,986) and Dick et al (US 5,904,958).

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-8, 13-15, 28, and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liehr et al (US 6,487,986)] in view of Dick et al (US 5,904,958).

Helling et al teaches an electron beam continuous process vaporization installation for thermally high stressed substrates.

Regarding claims 1 and 13:

The prior art of Liehr et al (US 6,487,986) teaches an elongated vapor source (chamber 1) with plugs (manifold 10/nozzles 11,11' 11'', ...) that have two openings (an inlet and an outlet)

that extend the length of the interior of each plug. The source is closed and provided with heat via glow wires (7, 7', 7'').

The plugs of Liehr et al et al are formed in a linear and rectangular array, see Figures 1 and 2.

Liehr et al fails to teach an apparatus according to claim 1, wherein said lubricant vapor source (c) comprises at least a plurality of threaded holes into which said plugs are screwed therein.

Dick et al teaches an adjustable nozzle for evaporation or organic monomers. Dick et al further teaches an evaporator 26 (vapor source). The organic monomer enters the evaporation chamber through an inlet 46. The nozzle plate 50 is bolted to the nozzle housing 28 using bolts 58. The motivation to modify the apparatus of Helling et al or Hedgeforth as modified by Liehr et al et al to utilize the evaporator of Dick et al to provide a method of attaching the plugs to the holes. Dick et al shows that it is conventional to screw the plugs into the holes to control the manipulation of the hole openings and thus control the available surface area. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to attach/provide the plugs to the holes by screwing them. Note the term threaded holes is interpreted as a matter of product by process, though Dick does teach a threaded hole.

Note that the prior art of Liehr et al teaches plugs/nozzles that would be threaded holes and filled with plugs (bolts allowing for source material to flow therethrough) as suggested by modifying with the teachings of Dick et al. The motivation to design the threaded holes of the lubricant source at the time of the claimed invention to be parallel to the drilled holes of plug is for simplification of the flow path of the lubricant vapor to the substrate. Thus, it would have

been obvious to design the source of the apparatus resulting from the prior art of Liehr et al with the teachings of Dick et al.

Regarding claim 2: The apparatus according to claim 1, wherein said chamber (a) is adapted for maintaining said interior space at a pressure below atmospheric pressure, see Figures 1 and 2 and the slit airlocks of Liehr et al et al.

Regarding claim 3: The apparatus according to claim 1, wherein said substrate loader/unloader (b) is adapted for providing cooling/condensation (cooled carrier 3 of Liehr et al) of said lubricant vapor for preventing escape of said lubricant vapor from said interior space of said chamber when the substrate is cooled the vapor disposed thereabout is cooled as well.

Regarding claims 4 and 5: Though Liehr et al does teach a disk shaped substrate, the examiner recognizes that the inclusion of material or an article worked upon by a structure being claimed does not impart patentability to the claims. In re Young, 75 F. 2d 966, 25 USPQ 69 (CCPA 1935) (as restated in In re Otto, 312 F.2d 937, 136 USPQ 458, 459 (CCPA 1963)). Furthermore, note that the apparatus is what it is and not what it does, the type of substrate used does not structurally limit the apparatus and is not given patentable weight.

Regarding claims 28 and 29: The plugs having a pattern wherein the plugs at the outer edges have a smaller diameter than the plugs adjacent to the middle of the vapor source, the arrangement of the plugs and are interpreted as a matter of optimization without a showing of criticality of this arrangement, shape, or rearrangement of the plugs. The courts have held that without a showing of criticality of the shape, arrangement of a structure, the optimization of such is a prima facie case of obviousness; see In re Japsike, In re Dailey et al.

4. Alternatively, Claims 4-8 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Liehr et al (US 6,487,986)] in view of Dick et al (US 5,904,958) as applied above, and in further view of Helling et al (US 5,882,415).
5. The teachings of Liehr et al as modified by Dick et al were discussed above.
6. The modification fails to teach modifications to the apparatus to compensate for a disc-shaped substrate.

Regarding claim 4: The apparatus of Helling et al , wherein said substrate loader/unloader (b) is adapted for supplying and withdrawing at least one disc- shaped substrate having a pair of opposed surfaces and said substrate transporter/conveyor (d) is adapted for mounting or gripping at least one disc-shaped substrate, see series of rollers 13 which are arranged on both sides of the carriage col. 4 lines 23-32.

Regarding claim 5: The apparatus according to claim 4, wherein said at least one lubricant vapor source (c) is elongated, with a length greater than an outer diameter of said disc-shaped substrate, see Figs. 1 and 2 of Liehr et al et al.

Regarding claim 6: The apparatus lubricant vapor source (c) according to claim 5, wherein said elongated comprises a closed heated chamber for accommodating liquid lubricant therein and serving as a lubricant vaporizer, said closed heated chamber fluidly communicating with at least a plurality of primary plugs for supplying said stream of lubricant vapor, see glow wires of Liehr et al .

Regarding claim 7: The apparatus according to claim 6, wherein said elongated vapor source (c) further comprises a plurality of secondary plugs for increased collimation of said stream of lubricant vapor, see Figs. 1 and 2 of Liehr et al et al (primary plugs 11, 11', 11"...) and secondary

plugs (9, 9', 9"...) as primary plugs are the longer plugs and shorter plugs are secondary plugs or vice versa.

Regarding claim 8: The apparatus according to claim 6, further comprising a spaced apart plurality of said elongated lubricant vapor sources (c) arranged along a path of transport conveyance of said at least one disc-shaped substrate within said interior space of said chamber, see crucibles 7 in Fig.1 of Helling et al.

Regarding claim 15: The apparatus according to claim 8, wherein said chamber (a) is an elongated, rectangular box-shaped chamber having a pair of longitudinally extending front and rear walls; said substrate loader/unloader (b) comprises a substrate load lock chamber connected to said chamber at a first end of said front wall and a substrate exit lock chamber connected to said chamber at a second end of said front wall; each of said spaced-apart plurality of elongated lubricant vapor sources (c) extends transversely across said front wall in the space between said load lock and said exit chambers; and said substrate transporter/conveyor (d) is adapted to move said at least one disc-shaped substrate in a linear path past each of the transversely extending, elongated lubricant vapor sources, see Helling et al, Fig. 1.

The motivation to modify the apparatus of Liehr et al as modified by Dick et al with the teachings of Helling et al to accommodate a disc-shaped substrate is that it is known to use substrates of different shapes and sizes and to provide the necessary accommodations to the apparatus. Thus, it would have been obvious for one of ordinary skill in the art at the time of the claimed invention to modify the apparatus of Liehr et al as modified by Dick et al with the teachings of Helling et al to accommodate a disc-shaped substrate.

### ***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

8. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sylvia R. MacArthur whose telephone number is 571-272-1438.

The examiner can normally be reached on M-Th during the hours of 8 a.m. and 4:30 p.m..

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Parviz Hassanzadeh can be reached on 571-272-1435. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.



Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

April 12, 2010

/Sylvia R MacArthur/  
Primary Examiner, Art Unit 1716